

ABSTRACT OF THE DISCLOSURE

A silicided amorphous polysilicon - metal capacitor is formed using a standard process except that the exposed surface of the polycrystalline silicon is transformed into amorphous polysilicon before the silicidation of the polysilicon layer to form the bottom plate of the capacitive element. Transforming the polycrystalline silicon to amorphous polysilicon at the surface renders the top surface of the polysilicon substantially smooth compared to that of the polycrystalline silicon. This in turn renders the surface of the silicide layer, which forms the bottom plate of the capacitor and is formed by the silicidation of the polysilicon, to be substantially smooth as well. Thus, the likelihood of stress points being formed in the dielectric layer of the capacitor is substantially reduced, increasing yield and reliability and permitting a reduction in the thickness which leads to a greater value of capacitance per unit area. The polycrystalline silicon can be rendered amorphous through implantation of a neutral species prior to the silicidation of the polysilicon to form the silicide layer that is used for the bottom plate of the capacitive element.